Instructions – Parts List

Parts

MODEL LSPBR 1000™

STAINLESS STEEL, LOW SHEAR, WATERBASE COMPATIBLE

Back Pressure Regulator

308115J

300 psi (2.1 MPa, 21 bar) Maximum Working Pressure

200 psi (1.4 MPa, 14 bar) Maximum Regulated Pressure

4 GPM (15 L/min) Minimum Fluid Flowrate

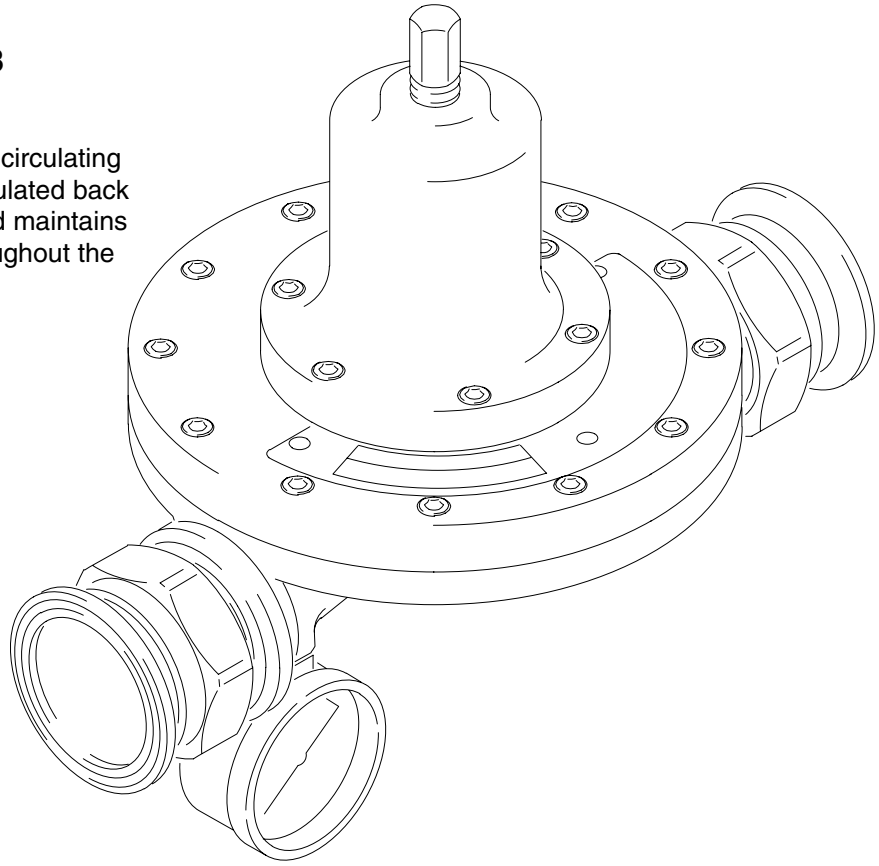
For use in circulating air spray systems only

Part No. 223824, Series B
With 2 inch sanitary clamp

Part No. 224486. Series B
With 1–1/2 inch npt(f) fittings

For use with waterbase fluids in circulating air spray systems. Provides regulated back pressure to the spray gun(s) and maintains proper circulating pressure throughout the system.

U.S. and Foreign Patents Pending



Read warnings and instructions.
See page 2 for table of contents.

PROVEN QUALITY. LEADING TECHNOLOGY

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Table of Contents

Warnings 2
Installation 3
Operation 4
Service 5
Parts 6
Dimensions 7
Technical Data 7
Graco Standard Warranty 8
Graco Information 8

Symbols

Warning Symbol

⚠ WARNING

This symbol alerts you to the possibility of serious injury or death if you do not follow the instructions.

Caution Symbol

⚠ CAUTION

This symbol alerts you to the possibility of damage to or destruction of equipment if you do not follow the corresponding instructions.

⚠ WARNING

EQUIPMENT MISUSE HAZARD

Equipment misuse can cause the equipment to rupture, malfunction, or start unexpectedly and result in a serious injury.

- This equipment is for professional use only.
- Read all the instruction manuals, tags, and labels before operating the equipment.
- Use the equipment only for its intended purpose. If you are uncertain about usage, call your Graco distributor.
- Do not alter or modify this equipment. Use only genuine Graco parts and accessories.
- Check the equipment daily. Repair or replace worn or damaged parts immediately.
- Do not exceed the maximum pressure of the lowest rated system component. This equipment has a **300 psi (2.1 MPa, 21 bar) maximum inlet pressure** and a **30 psi (210 kPa, 2.1 bar) maximum static fluid pressure.**
- Use fluids that are compatible with the equipment wetted parts. See the **Technical Data** section of all the equipment manuals. Read the fluid manufacturer's warnings.
- Route the hoses away from traffic areas, sharp edges, moving parts, and hot surfaces. Do not expose Graco hoses to temperatures above 180°F (82°C) or below –40°F (–40°C).
- Comply with all applicable local, state, and national fire, electrical, and other safety regulations.

PRESSURIZED EQUIPMENT HAZARD

Spray from the gun, hose leaks, or ruptured components can splash fluid in the eyes or on the skin and cause serious injury.

- Do not stop of deflect fluid leaks with your hand, body, glove, or rag.
- Follow the **Pressure Relief Procedure** in your separate equipment manuals whenever you: are instructed to relieve pressure; stop spraying; clean, check, or service the equipment; and install or clean the spray tip.
- Tighten all the fluid connections before operating the equipment.
- Check the hoses, tubes, and couplings daily. Replace worn, damaged, or loose parts immediately. Permanently coupled hoses cannot be repaired; replace the entire hose.

Installation

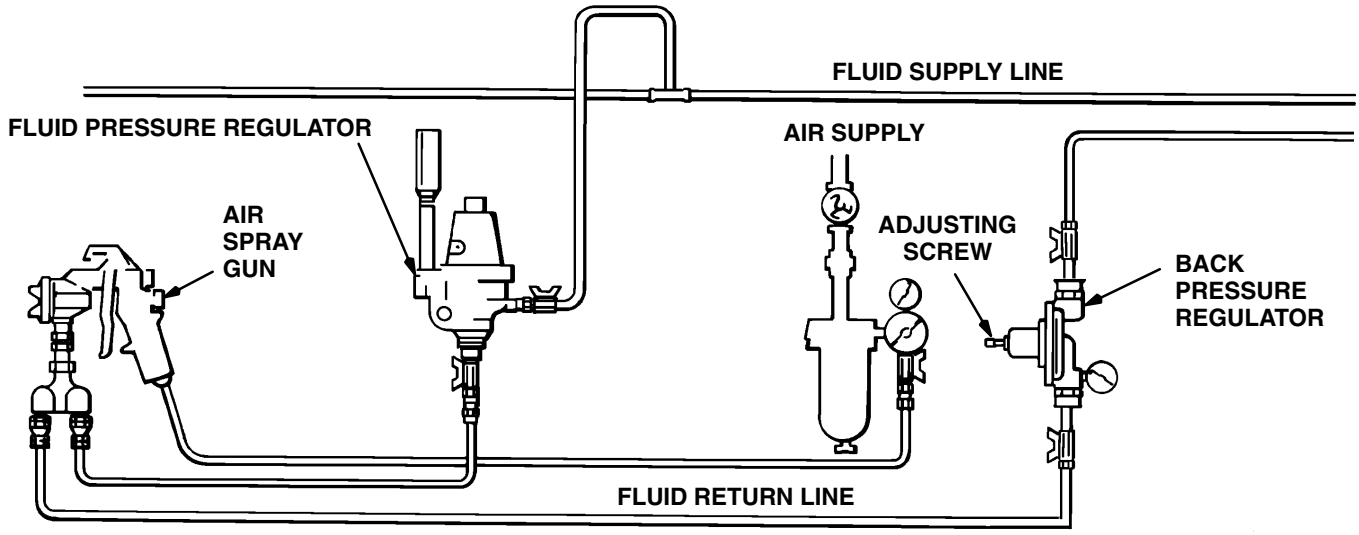


Fig. 1

Installing the Back Pressure Regulator

The regulator is available with either 2 in. sanitary clamps (Model 223824) or with 1–1/2 in. npt(f) fittings (Model 224486). Be sure to order the regulator with the type of end fittings required. The fittings should not need to be removed or replaced during installation.

⚠ WARNING

If the end fittings are loosened or removed, be sure to torque them to 100 to 110 ft-lb (135 to 150 N•m) when they are tightened or installed. Failure to do so could cause fluid to discharge and result in serious injury or property damage.

⚠ CAUTION

To avoid fluid leakage, use only Graco Fitting Kits 916331 or 916343 when installing Model 223824 regulator.

Install the back pressure regulator in the spray gun return line. See Fig. 1. Connect the fluid line to the inlet and outlet fittings, making sure the flow direction agrees with the IN and OUT markings on the regulator body.

⚠ CAUTION

The fluid flow direction must agree with the IN and OUT markings on the regulator body. Failure to do so will damage the back pressure regulator.

The back pressure regulator is adjustable to control the fluid pressures in a circulating system from 15 to 200 psi (0.1 to 1.4 MPa, 1 to 14 bar).

If more than one spray station is used, install the back pressure regulator in the fluid supply line after the last station. This will help maintain proper circulating pressures in the system.

⚠ CAUTION

To avoid excessive wear on the diaphragm, regulator inlet pressure should not be allowed to pulsate greater then +/– 5% of nominal pressure.

Operation

NOTE: The back pressure regulator controls pressure ahead of its intake.

Turn the adjusting screw clockwise to increase upstream pressure and counterclockwise to decrease pressure.

Adjust the pump pressure and back pressure regulator for the best spraying combination and for proper circulation of fluid. Turn the back pressure regulator's adjusting screw fully clockwise, so fluid flow is minimal and back pressure is at maximum, before beginning adjustment.

Flush the back pressure regulator with a compatible solvent whenever the rest of the system or unit is being flushed. Open the back pressure regulator before flushing by turning the screw counterclockwise.

⚠ CAUTION

To avoid damaging the diaphragm

1. Never back flush.
2. If an external pump is used to flush, make sure the inlet pressure to the back pressure regulator does not exceed 30 psi (210 kPa, 2.1 bar).

Service

⚠ WARNING

To reduce the risk of serious injury, including fluid injection, splashing in the eyes or on the skin, or injury from moving parts, always open the back pressure regulator and relieve all air and fluid pressures in the system before removing or servicing the back pressure regulator.

NOTE: Regulator an inspection of the regulator, based upon the degree and kind of service, is essential.

1. Shut off the pump and open the back pressure regulator by turning the adjustment screw (15) counterclockwise until no spring pressure is felt. Relieve all air and fluid pressures in the system.

NOTE: The back pressure regulator can either be serviced while it remains in the fluid line or it can be removed from the line for servicing.

2. Disassemble the regulator and clean it with a suitable solvent. See the **Parts Drawing** on page 6.

3. Carefully inspect the diaphragm (10) for cracks or other damage. Replace if necessary.

4. Check the parts for chips or dirt before assembling the regulator.

5. Install the diaphragm parts onto the regulator base (9).

   Lubricate the parts as indicated in the **Parts Drawing** on page 6.

   Tighten the cover screws (2) finger tight, then torque them to 70 to 90 in-lb (8.0 to 10.2 N•m) in a criss-cross pattern. See the *TOP VIEW* in the **Parts Drawing**.

⚠ CAUTION

Do not lubricate the parts with silicone grease. Silicone grease will contaminate the fluid and blemish the finish of the surface being painted.

6. Tighten the regulator cap screws (2) finger tight, then torque them to 70 to 90 in-lb (8.0 to 10.2 N•m) in a criss-cross pattern. See the *TOP VIEW* in the **Parts Drawing**

7. To remove or install the gauge (8), use the wrench on the square portion of the gauge stud only. Use thread sealer sparingly on the gauge's male threads when install it to avoid plugging the gauge.

8. Install the back pressure regulator back in the fluid line.

⚠ WARNING

If the end fittings (16) are loosened or removed, be sure to torque them to 100 to 110 ft-lb (135 to 150 N•m) when they are tightened or installed. Failure to do so could cause fluid to discharge and result in serious injury or property damage.

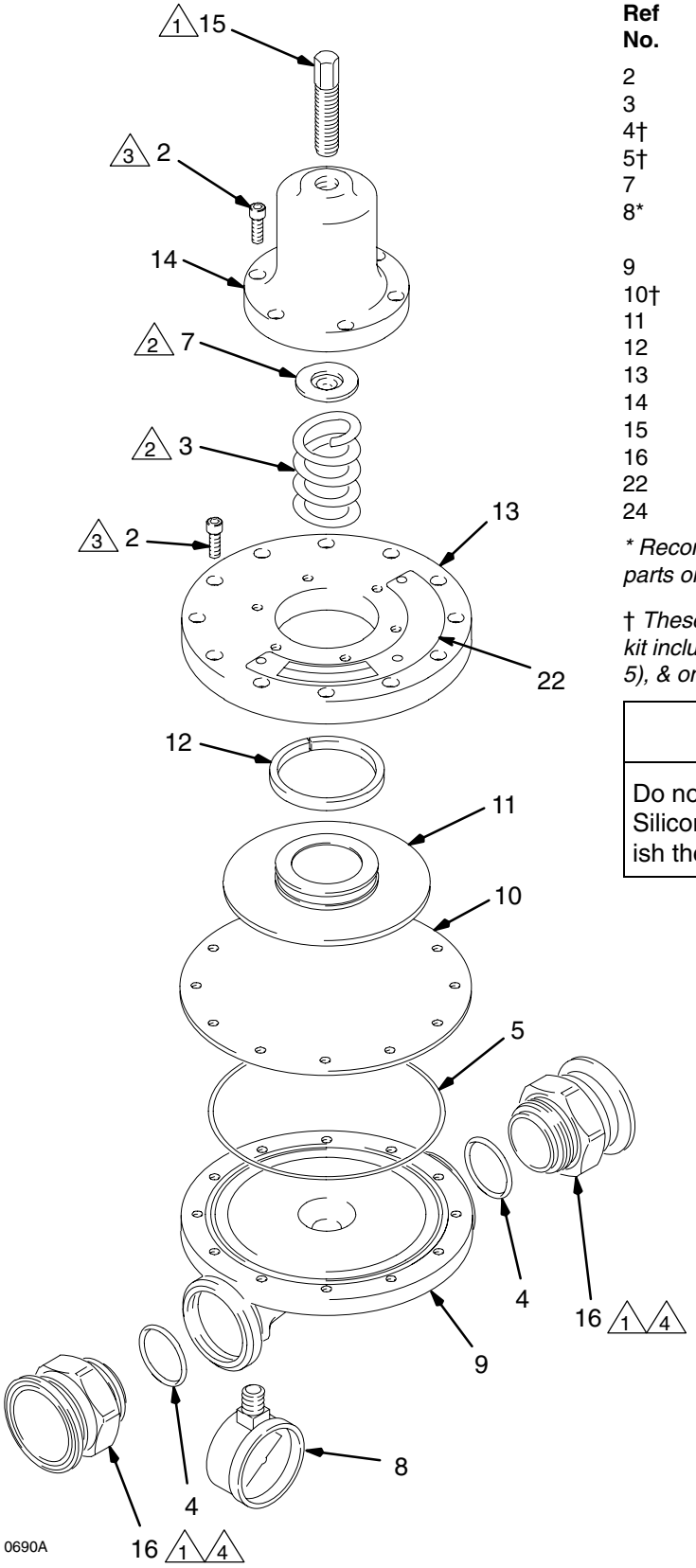
Parts

Model 223824, Series B

With 2 in. sanitary clamp fittings. Includes 2 to 22.

Model 224486, Series B

With 1–1/2 in. npt(f) fittings. Includes 2 to 15, 22, and 24.



Ref No.	Part No.	Description	Qty.
2	112166	SCREW, cap, sch; 1/4–20 x 3/4”	18
3	104144	SPRING, compression	1
4†	107078	O-RING, PTFE	2
5†	111331	O-RING, PTFE	1
7	160033	PLATE, spring	1
8*	187873	GAUGE, 0 to 200 psi (0 to 1.4 MPa, 0 to 14 bar)	1
9	186866	BASE, regulator	1
10†	190849	DIAPHRAGM	1
11	186868	PLATE, diaphragm	1
12	190857	BEARING	1
13	186870	COVER, diaphragm	1
14	186871	CAP	1
15	186872	SCREW, adjustment	1
16	187004	FITTING, 2” sanitary clamp	2
22	187223	PLATE, warning	1
24	187150	FITTING, 1–1/2” npt(f)	2

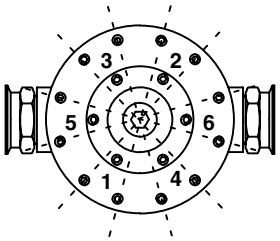
** Recommended Tool Box spare parts. Keep these spare parts on hand to reduce down time.*

† *These parts are included in repair kit 224437. Note that the kit includes one new-style*PTFE *0-ring, Part No. 111331 (Ref. 5), & one old-style*PTFE *O-ring, Part No. 111278.*

⚠ CAUTION

Do not lubricate the parts with silicone grease. Silicone grease will contaminate the fluid and blemish the finish of the surface being painted.

Torque diaphragm cover screws and cap screws in a criss-cross pattern to 70 to 90 in-lb (8.0 to 10.2 N•m).



TOP VIEW

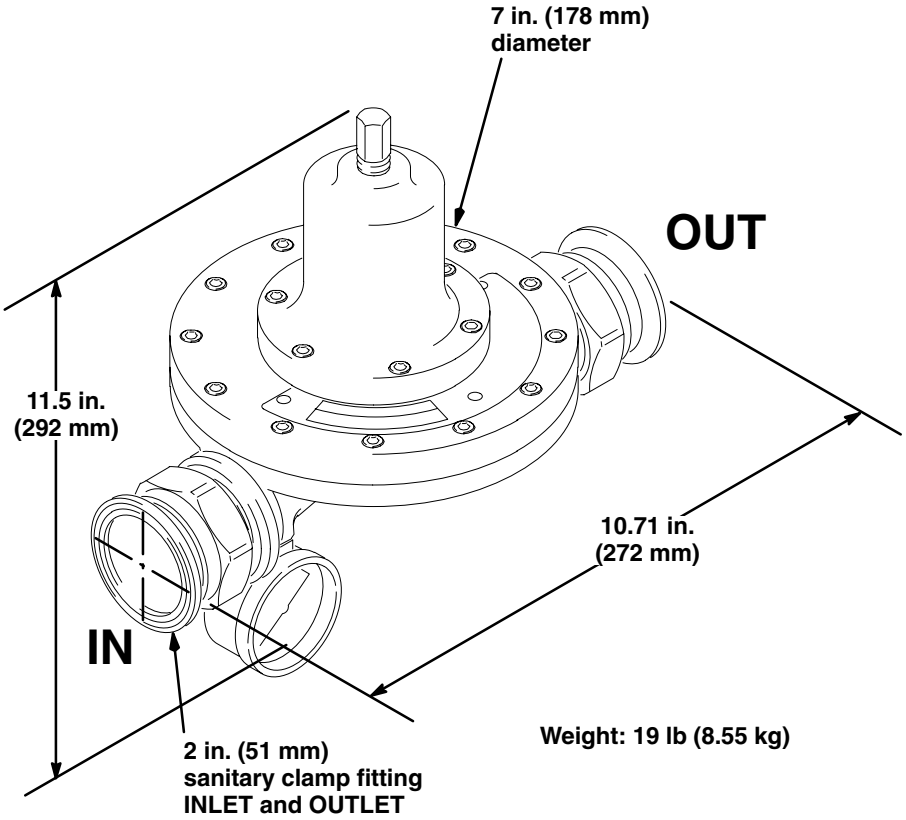
1 Lubricate threads with light grease.

2 Lubricate with lithium-base grease.

3 See **TOP VIEW**.

4 Torque to 100 to 110 ft-lbs (135 to 150 N•m)

Dimensions



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Technical Data

Maximum Inlet Pressure	300 psi (2.1 MPa, 21 bar)
Regulated Pressure Range	15 to 200 psi (0.03 to 1.4 MPa, 0.3 to 14 bar)
Inlet and Outlet Size: *Model 223824*	2 in. sanitary clamp fitting
Inlet and Outlet Size: *Model 224486*	1–1/2 in. npt(f) fitting
Gauge Port Size	1/4 npt(f)
Wetted Parts	301, 304 & 316 Stainless Steel, PTFE
Minimum Fluid Flowrate	4 GPM (15 L/min)

Graco Standard Warranty

Graco warrants all equipment manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale by an authorized Graco distributor to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

Graco's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within two (2) years of the date of sale.

Graco makes no warranty, and disclaims all implied warranties of merchantability and fitness for a particular purpose in connection with accessories, equipment, materials or components sold but not manufactured by Graco. These items sold, but not manufactured by Graco (such as electric motors, switches, hose, etc.), are subject to the warranty, if any, of their manufacturer. Graco will provide purchaser with reasonable assistance in making any claim for breach of these warranties.

In no event will Graco be liable for indirect, incidental, special or consequential damages resulting from Graco supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of Graco, or otherwise.

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Graco Information

TO PLACE AN ORDER, contact your Graco distributor, or call one of the following numbers to identify the distributor closest to you:

1–800–328–0211 Toll Free
612–623–6921
612–378–3505 Fax

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